

a second actuation comb attached to the secondary air bearing and lying within the gap wherein the first and second actuation combs are interwoven.

24. The slider of claim 23 wherein the first and second actuation combs are electro-static.

REMARKS

This is in response to the Office Action mailed on May 21, 2002 in which the drawings are objected to and claims 1-24 are rejected. Proposed drawing corrections to FIGS. 3, 4, 5, 6 and 8 are enclosed, which address the objection raised by the Examiner. The reference numbers in the drawings identifying the primary air bearing and the secondary air bearing have been switched to conform with the specification.

Claims 1-6 are rejected under 35 U.S.C. §102(e) as being anticipated by U.S. Patent No. 6,181,531 (Koshikawa et al.). To anticipate a claim, the reference must teach, suggest, or disclose each and every element as set forth in the claim. *Verdegaal Bros v. Union Oil Co. of CA*, 814 F.2d 628, 631, 2 U.S.P.Q.2d 1051, 1053 (Fed. Cir. 1987). "The identical invention must be shown in as complete detail as is contained in the claim." *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236, 9 U.S.P.Q.2d. 1913, 1920 (Fed. Cir. 1989).

In regards to claim 1, it is respectfully submitted that Koshikawa et al. does not teach, suggest, or disclose the invention as claimed. Claim 1 recites a slider for supporting a transducing head proximate a rotating disc. The slider includes a slider body, including a primary air bearing and a secondary air bearing, the slider body having a disc opposing face bounded by a leading edge and a trailing edge, where the transducing head is located on the disc opposing face proximate the trailing edge and on the secondary air bearing. The slider also includes means for permitting vertical movement of the transducing head with respect to the slider body in response to local disc surface topography to maintain head media spacing (HMS) between the transducing head and the disc substantially constant as the slider flies above the disc.

Koshikawa et al. does not teach, suggest, or disclose each and every element of claim 1 of the present application. Koshikawa et al. discloses a thin film magnetic head slider and an electrostatic actuator for driving a head element. The slider of Koshikawa et al. does not include a primary air bearing and a secondary air bearing. Movable section 152 of Koshikawa et al. is not an air bearing, but rather is embedded in slider body 110 (shown in FIG. 23) and does not include a disc opposing surface. Furthermore, vertical movement of head element 152b does not occur in response to local disc surface topography, as required by claim 1. Rather, vertical movement of head element 152b occurs by an electrostatic attraction force acting on moveable section 152, resisting a force of support spring 154. Koshikawa et al. does not teach, suggest or disclose a secondary air bearing, nor is the head element vertically moved in response to disc surface topography. Thus, the rejection to claim 1 should accordingly be withdrawn. Claims 2-6 depend from claim 1, and therefore are allowable as well.

Claims 7-20 are rejected under 35 U.S.C. §103(a) as being unpatentable over Koshikawa et al. in view of U.S. Patent No. 6,069,769 (Dorius et al.) and claims 12 and 21-24 are rejected under 35 U.S.C. §103(a) as being unpatentable over Koshikawa et al. in view of Dorius et al. (as applied to claims 7 and 17), and further in view of U.S. Patent No. 5,943,189 (Boutaghou et al.).

In an obviousness determination, the cited prior art must be analogous art in order to be considered relevant initially. *See, In re Clay* 966 F.2d 656, 23 U.S.P.Q.2d 1058 (Fed. Cir. 1992). Furthermore, if the cited prior art is found to be analogous, obviousness requires that there be a suggestion or motivation to modify the teachings of the cited prior art in order to achieve the invention at issue. *See, ASC Hosp. Sys., Inc. v. Montefiore Hosp.*, 732 F.2d 1572, 1577, 221 U.S.P.Q. 929, 933 (Fed. Cir. 1984). "The mere fact that the prior art may be modified in the manner suggested by the Examiner does not make the modification obvious unless the prior art suggested the desirability of the modification." *In re Fritch*, 972 F.2d 1260, 1266, 23 U.S.P.Q.2d 1780, 1783-84 (Fed. Cir. 1992). A prior art reference must be considered in its entirety, that is as a whole, including portions that would lead away from the claimed invention. *W.L. Gore & Associates v. Garlock, Inc.*,

721 F.2d 1540, 1550, 220 U.S.P.Q. 303, 311 (Fed Cir 1983). To determine the difference between the prior art and the claims, one question is whether the claimed invention as a whole would have been obvious, and not whether the differences themselves would have been obvious. *Stratoflex, Inc. v. Aeroquip Corp.*, 713 F.2d 1530, 218 U.S.P.Q. 871 (Fed. Cir. 1983); *Schenck v. Nortron Corp.*, 713 F.2d 782, 218 U.S.P.Q. 698 (Fed. Cir. 1983). To establish prima facie obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. *In re Royka*, 490 F.2d 981, 180 U.S.P.Q. 580 (CCAP 1974).

Claim 7 recites a slider for supporting a transducing head proximate a rotating disc. The slider includes a primary air bearing having a disc opposing face bounded by a leading edge and a first trailing edge, with an air bearing surface defined on the disc opposing face. The slider also includes a secondary air bearing having a disc opposing face bounded by a front edge and a second trailing edge, with the air bearing surface defined on the disc opposing face and the air bearing surface having a pad proximate the second trailing edge with the transducing head located on the pad. An interface connects the secondary air bearing to the primary air bearing, wherein the interface displaces the transducing head vertically with respect to the primary air bearing to maintain HMS between the transducing head and the disc substantially constant as the slider flies above the disc.

Koshikawa et al., Dorius et al., or a combination of the two do not teach or suggest a slider having a primary air bearing and a secondary air bearing. Koshikawa et al. includes an air bearing surface with a movable section 152 embedded in the slider. Movable section 152 is not a secondary air bearing because it is embedded in the slider body and does not include a disc opposing face. Dorius et al. does not include a secondary air bearing, but rather a slider having a single air bearing surface. Although the slider of Dorius et al. includes a pad bounded by a trailing edge, this feature when combined with Koshikawa et al. does not teach or suggest the invention recited in claim 7.

All the claim limitations of claim 7 are not taught or suggested by the prior art references Koshikawa et al. and Dorius et al. In particular, the secondary air bearing having a disc opposing face is not taught by either prior art references. Furthermore, there is no suggestion or

motivation to modify the teachings of either prior art references to include a secondary air bearing. Both prior art references include a single air bearing on which the transducing head is located. Thus, the rejection to claim 7 should be withdrawn. Claims 8-16 depend from claim 7, and are therefore allowable as well.

Claim 17 recites a slider for supporting a transducing head proximate a rotating disc. The slider includes a slider body having a disc opposing face bounding by a leading edge and a trailing edge, the slider body having a longitudinal axis. An air bearing surface is defined on the disc opposing face, the air bearing surface having a pad proximate the trailing edge, with the transducing head located on the pad. The slider also includes an interface defined in the slider body and substantially surrounding the transducing head, where the interface displaces the transducing head vertically with respect to the slider body to maintain HMS between the transducing head and the disc substantially constant as the slider flies above the disc.

Koshikawa et al. combined with Dorius et al. does not teach or suggest all the claim limitations of claim 17. Claim 17 requires the interface to substantially surround the transducing head, which is located on the pad. Koshikawa et al. discloses parallel teeth 151a and 152a which the Examiner defines as an interface to displace the head element 152 vertically. However, teeth 151a and 152a do not substantially surround head element 152b. Although Dorius et al. discloses a pad where the transducing head is located, the prior art references do not disclose an interface that substantially surrounds a transducing head. The parallel teeth 151a and 152a of Koshikawa et al. are embedded in slider 110 beneath the head element 152b. Because Koshikawa et al. combined with Dorius et al. does not teach or suggest an interface which substantially surrounds a transducing head, the rejection to claim 17 should be withdrawn. Accordingly, claims 18-21, which depend from claim 17, are allowable as well.

Claim 22 recites a slider for supporting a transducing head proximate a rotating disc. The slider includes a primary air bearing having a disc opposing face bounded by a leading edge and a rear edge and a secondary air bearing having a disc opposing face bounded by a front edge and a trailing edge. An air bearing surface is defined on the disc opposing faces of the primary and

secondary air bearings, the air bearing surface having a pad proximate the trailing edge of the secondary air bearing wherein the transducing head is located on the pad. The slider also includes a spring connecting the front edge of the secondary air bearing to the rear edge of the primary air bearing wherein the spring displaces the transducing head vertically with respect to the primary air bearing to maintain HMS between the transducing head and the disc substantially constant as the slider flies above the disc.

As discussed above with respect to claim 7, Koshikawa et al. combined with Dorius et al. does not teach or suggest all the claim limitations of claim 22 because neither reference includes two air bearings having disc opposing faces which define an air bearing surface. Moveable section 152, which the Examiner identifies as a secondary air bearing, is embedded in the slider body and does not include a disc opposing face or an air bearing surface. Furthermore, neither Dorius et al. or Boutaghou et al. suggest or provide a motivation to include a second air bearing with the slider. The rejection to claim 22 should accordingly be withdrawn because the combination of prior art references do not teach or suggest all the claim limitations of claim 22. Claims 23 and 24 depend from claim 22, and are therefore allowable as well.

Respectfully submitted,

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APPENDIX:

MARKED UP VERSION OF SPECIFICATION AND CLAIM AMENDMENTS

22. (Amended) A slider for supporting a transducing head proximate a rotating disc,
the slider comprising:

- a primary air bearing having a disc opposing face bounded by a leading edge and
a rear edge;
- a secondary air bearing having a disc opposing face bounded by a front edge and
a trailing edge;
- an air bearing surface defined on the disc opposing faces of the primary and
secondary air bearings, the air bearing surface having a pad
proximate the trailing edge of the secondary air bearing wherein
the transducing head is located on the pad; and
- a spring connecting the front edge of the secondary air bearing to the rear edge of
the primary air bearing wherein the [interface] spring displaces
the transducing head vertically with respect to the primary air
bearing to maintain head media spacing (HMS) between the
transducing head and [as] the disc substantially constant as the
slider flies above the disc.